



Newsletter – “Intelligent Robots for Handling of Flexible Objects”

This quarterly newsletter informs on the results and other activities within the INTERREG 4 A project “Intelligent Robots for Handling of Flexible Objects” (IRFO).

The project across the Danish-German border is co-financed by the INTERREG 4 A-program Syddanmark-Schleswig-K.E.R.N. funded by The European Union’s “The European Regional Development Fund”.

The project’s aim is to create a vision based system of robotic grippers that can handle objects varying in material, size, shape, and texture, who act differently in industrial processes, for production companies in Germany, Denmark and the rest of Europe. The project has a special focus on the food and meat industry, which handles the mentioned different shaped objects on a daily basis. The developed technology is also applicable in other contexts such as medical image analysis and industrial production.

Project partners are Christian-Albrechts-Universität zu Kiel (CAU), Mærsk Mc-Kinney Møller Institutet (MMMI) at University of Southern Denmark (SDU) in Odense, Mads Clausen Institutet (MCI) at SDU in Sønderborg and the lead partner Danish Technological Institute’s Centre for Robot Technology (DTI) in Odense.

Kinect-camera from Xbox supplements ToF-camera

CAU has for the vision part of the project involved a Kinect camera from the game console Xbox. The Kinect camera is the new and exciting technology we mentioned in the previous newsletter.

The Kinect camera is tested to see if it can replace the Time of Flight (ToF) camera to photograph the changes in the meat when it is caught and handled by the IRFO gripper.

While the ToF camera has a 176x144 pixel resolution the Kinect camera photographs in a 640x480 resolution. Another difference between the two cameras is the price. A ToF camera costs approximately 6,000 euro, whereas the price for the Kinect camera is 120 euro.

The Kinect camera takes the best close-up photos of the objects and requires less noise filtering of the data compared to the ToF camera. The Kinect camera has filmed the meat in this [video](#)

More than a million scanned gripping attempts

Jimmy Jørgensen and Leon Bodenhausen from MMMI have used the SDU program RobWork to simulate more than a million gripping attempts of meat in the IRFO simulator, to minimize the amount of faulty attempts.

The work continues with more gripping and pick up simulations to eliminate faulty attempts, and an interface to RobWork has to be created.

The project participates in fairs

DTI has displayed the project's demonstration model at the Verpackung Nord fair in Hamburg and at the FoodPharmatech fair in Herring. Roll ups have also presented the project at Automatica in Munich.

The fairs have had 38,000 visitors overall and the project's stand attracted 500 interested visitors.

Please visit the IRFO website: www.interreg-robot.eu

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